RDR-GX7

RMT-D203A

SERVICE MANUAL

US Model
Canadian Model

Self Diagnosis Supported model

DVD VIDEO/R/RW

RW DVD+ReWritable

COMPACT disc DIGITAL AUDIO

VIDEOPlus+

SPECIFICATIONS

System

Laser
- Semiconductor laser

Format
- NTSC

Channel coverage
- VHF: 2 to 13
- UHF: 14 to 69
- CATV: A-8 to A-1, A to W, W+1 to W+84

Video reception
- Frequency synthesizer system

Audio reception
- Split carrier system

Antenna
- 75-ohm antenna terminal for VHF/UHF

Timer
- Clock: Quartz locked
- Timer indication: 12-hour cycle (digital)
- Power back-up duration: 1 hour

Video recording format
- MPEG Video

Audio recording format/applicable bit rate
- Dolby Digital/2 ch, 256 kbps

Audio characteristics (Playback)

Frequency response
- DVD (PCM 96 kHz): 4 Hz to 44 kHz (±1.0 dB)/DVD (PCM 48 kHz): 4 Hz to 22 kHz (±0.5 dB)/CD: 4 Hz to 20 kHz (±0.5 dB)

Signal-to-noise ratio (S/N ratio)
- DVD: 115 dB (LINE OUT (AUDIO L/R) 2 jacks only)

Harmonic distortion
- DVD: 0.002 %

Dynamic range
- DVD: 110 dB/CD: 100 dB

Wow and flutter
- DVD: Less than detected value (0.001% W PEAK)

Audio characteristics (Recording/Playback)

Frequency response
- DVD (Dolby Digital 48 kHz): 10 Hz-20 kHz (±1.0 dB)

Signal-to-noise ratio
- DVD: 96 dB

Harmonic distortion
- DVD: 0.004 %

Dynamic range
- DVD: 96 dB

The signals from LINE OUT (AUDIO L/R) jack are measured. When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUT (OPTICAL or COAXIAL) jack are converted to 48 kHz sampling frequency.

Inputs and outputs

LINE OUT 1/2
(AUDIO)
- Phono jack
- Output level: 2 Vrms
- Load impedance: 10 kilohms

(VIDEO)
- Phono jack
- Output level: 1.0 Vp-p

(S VIDEO)
- 4-pin mini DIN
- Output level: Y:1.0 Vp-p, C: 0.286 Vp-p (NTSC)

LINE IN 1/2/3
(AUDIO)
- Phono jack
- Input level: 2 Vrms
- Input impedance: more than 22 kilohms

(VIDEO)
- Phono jack
- Input level: 1.0 Vp-p

(S VIDEO)
- 4-pin mini DIN
- Input level: Y:1.0 Vp-p, C: 0.286 Vp-p (NTSC)

DV IN
- 4-pin
- i.LINK S100

DIGITAL OUT (OPTICAL)
- Optical output jack
- Output level: –18 dBm (wave length: 660 nm)

DIGITAL OUT (COAXIAL)
- Phono jack
- Output level: 0.5 Vp-p
- Load impedance: 75 ohms

COMPONENT VIDEO OUT(Y, P_B, P_R)
- Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p

* Component Black Level is On
** Component Black Level is Off

CONTROL S IN
- Mini jack

General

Power requirements
- 120 V AC, 60 Hz

Power consumption
- 43 W

Dimensions (approx.)
- 430 × 89 × 381 mm ($17 \times 3\ ^5/_8 \times 15$ in.) (width/height/depth) incl. projecting parts

Mass (approx.)
- 5.6 kg (11.16 lb)

Operating temperature
- 5 ºC to 35 ºC (41 ºF to 95 ºF)

Operating humidity
- 25 % to 80 %

Supplied accessories
- Audio/video cord (1)
- Power cord (1)
- Antenna cable (1)
- Remote commander (remote) (1)
- Size AA(R6) batteries (2)

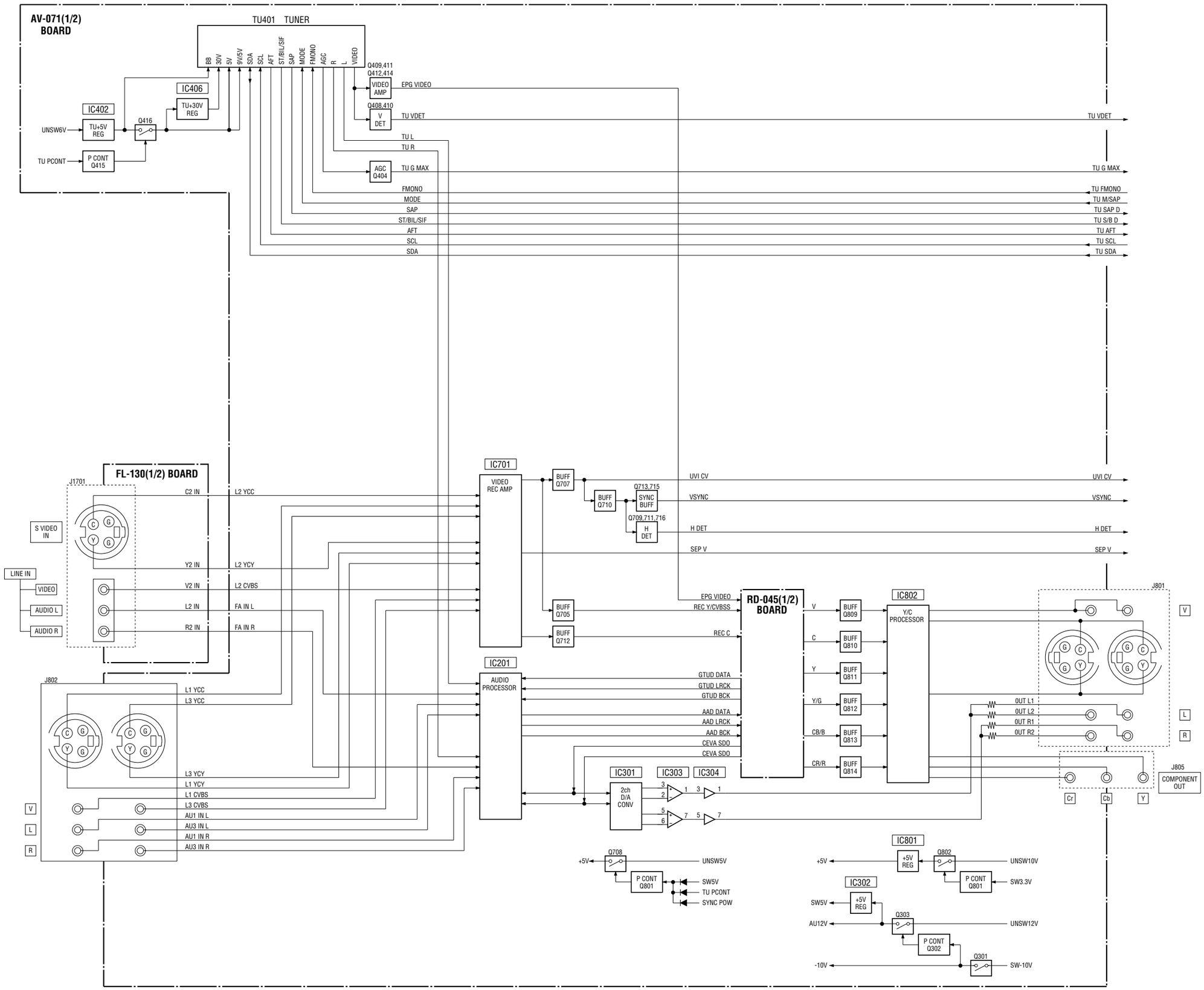
Specifications and design are subject to change without notice.

DVD RECORDER

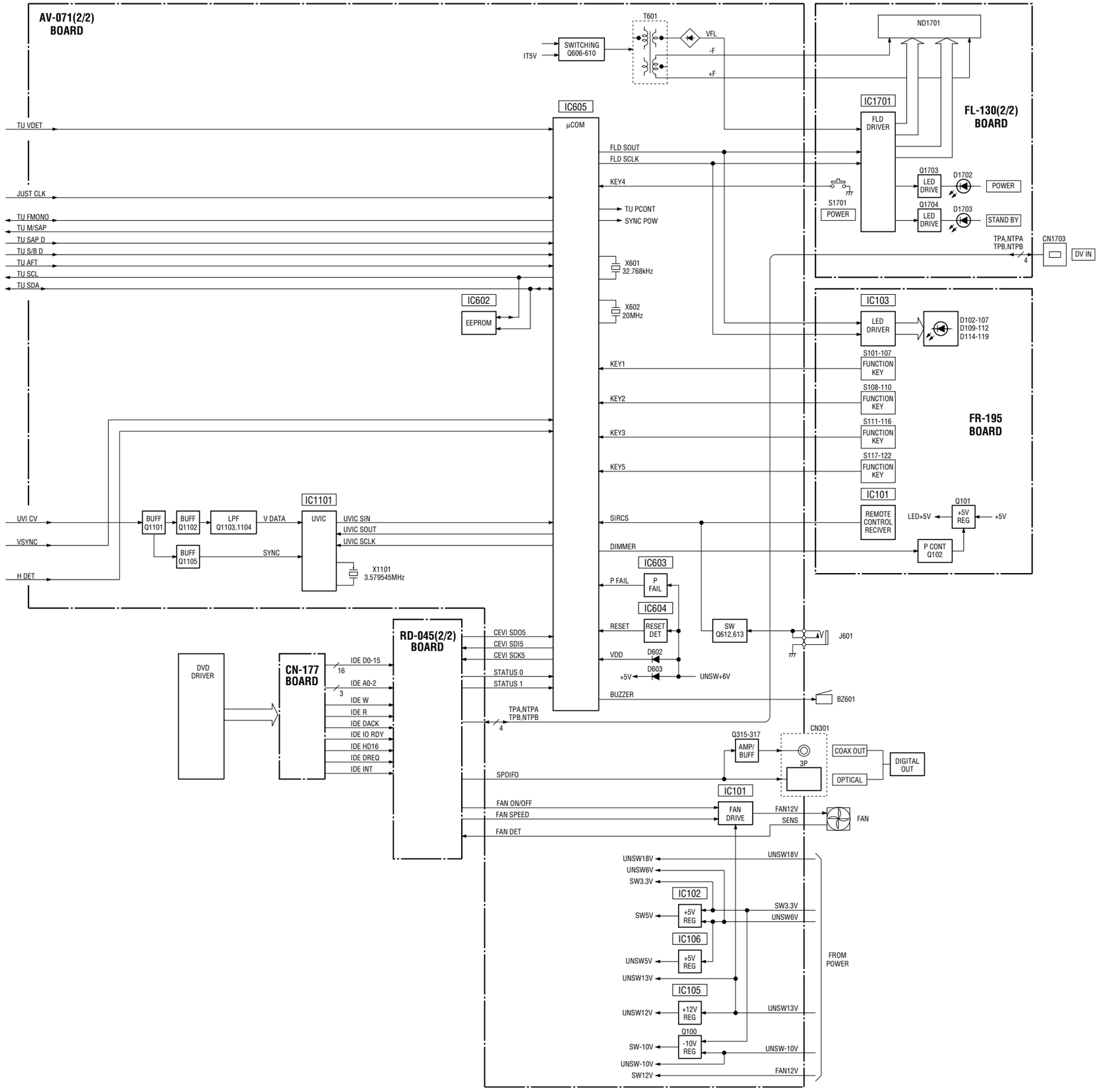
SONY®

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2)

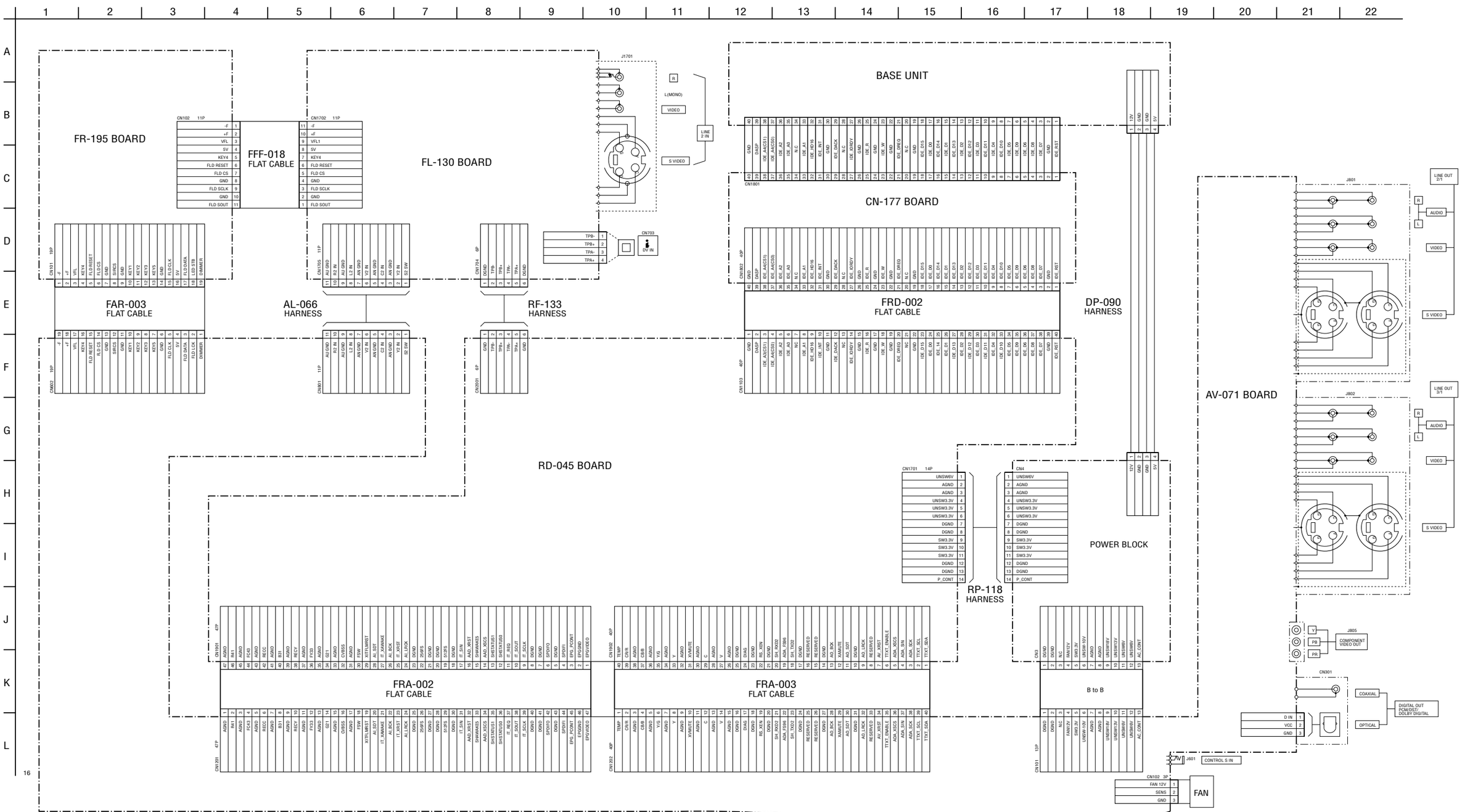


3-2. OVERALL BLOCK DIAGRAM (2/2)



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- ○——— : indicates a lead wire mounted on the component side.
- ●——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ▒▒▒ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W (Chip resistors : 1 /10 W) un-less otherwise specified.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, be-cause it is damaged by the heat.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : non flammable resistor
- : fusible resistor
- : panel designation
- △ : internal component.
- : adjustment for repair.
- B + : B+ Line
- B − : B– Line
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signals on DVD reference disc.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production tolerances.

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

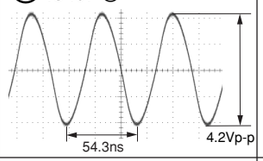
Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

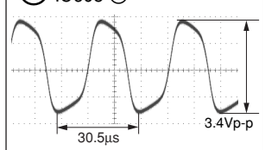
WAVEFORMS

AV-071 BOARD

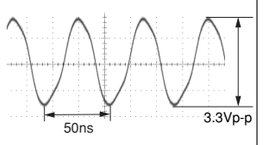
① IC407 ⑥



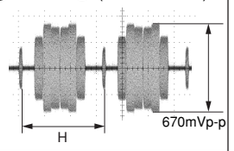
② IC605 ㊱



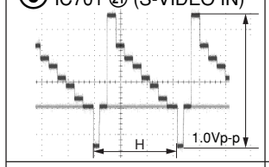
③ IC605 ㊳



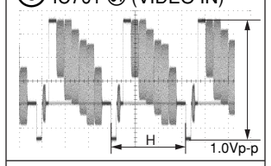
④ IC701 ⑪ (S-VIDEO IN)



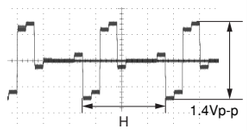
⑤ IC701 ㉑ (S-VIDEO IN)



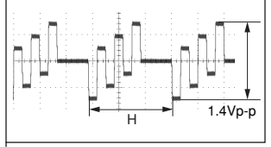
⑥ IC701 ㉞ (VIDEO IN)



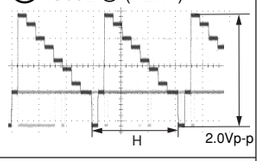
⑦ IC802 ⑳ (PLAY)



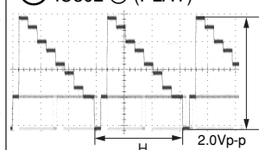
⑧ IC802 ㉒ (PLAY)



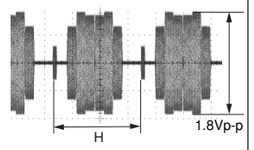
⑨ IC802 ㉔ (PLAY)



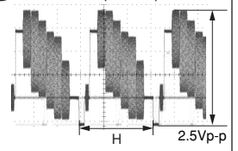
⑩ IC802 ㉙ (PLAY)



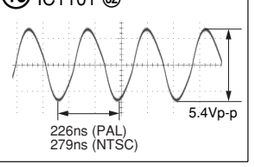
⑪ IC802 ㉛ (PLAY)



⑫ IC802 ㉝ (PLAY)



⑬ IC1101 ㉜



For Schematic Diagram

• Refer to page 4-23 for printed wiring board.

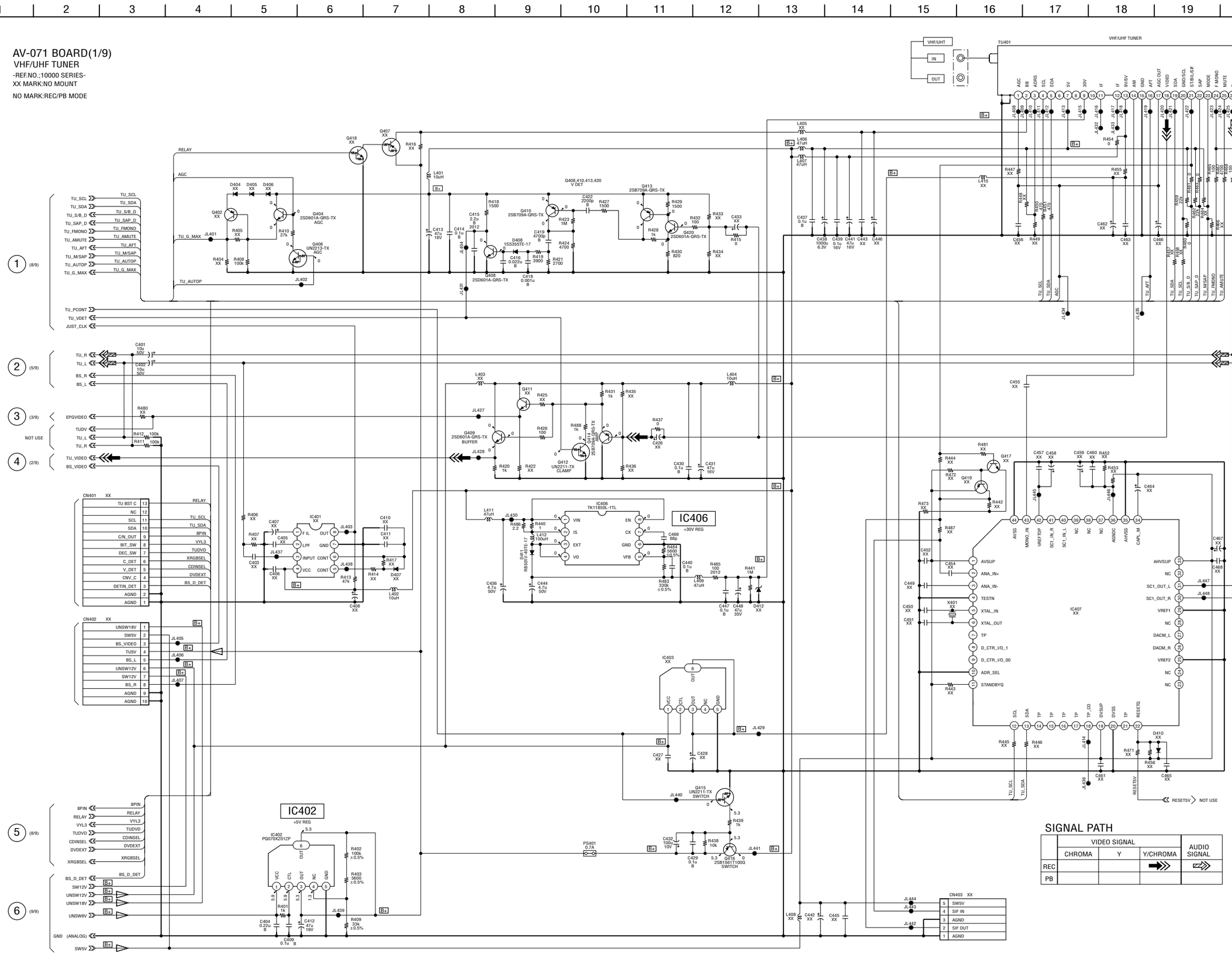
AV-071 BOARD(1/9)

VHF/UHF TUNER

-REF.NO.;10000 SERIES-

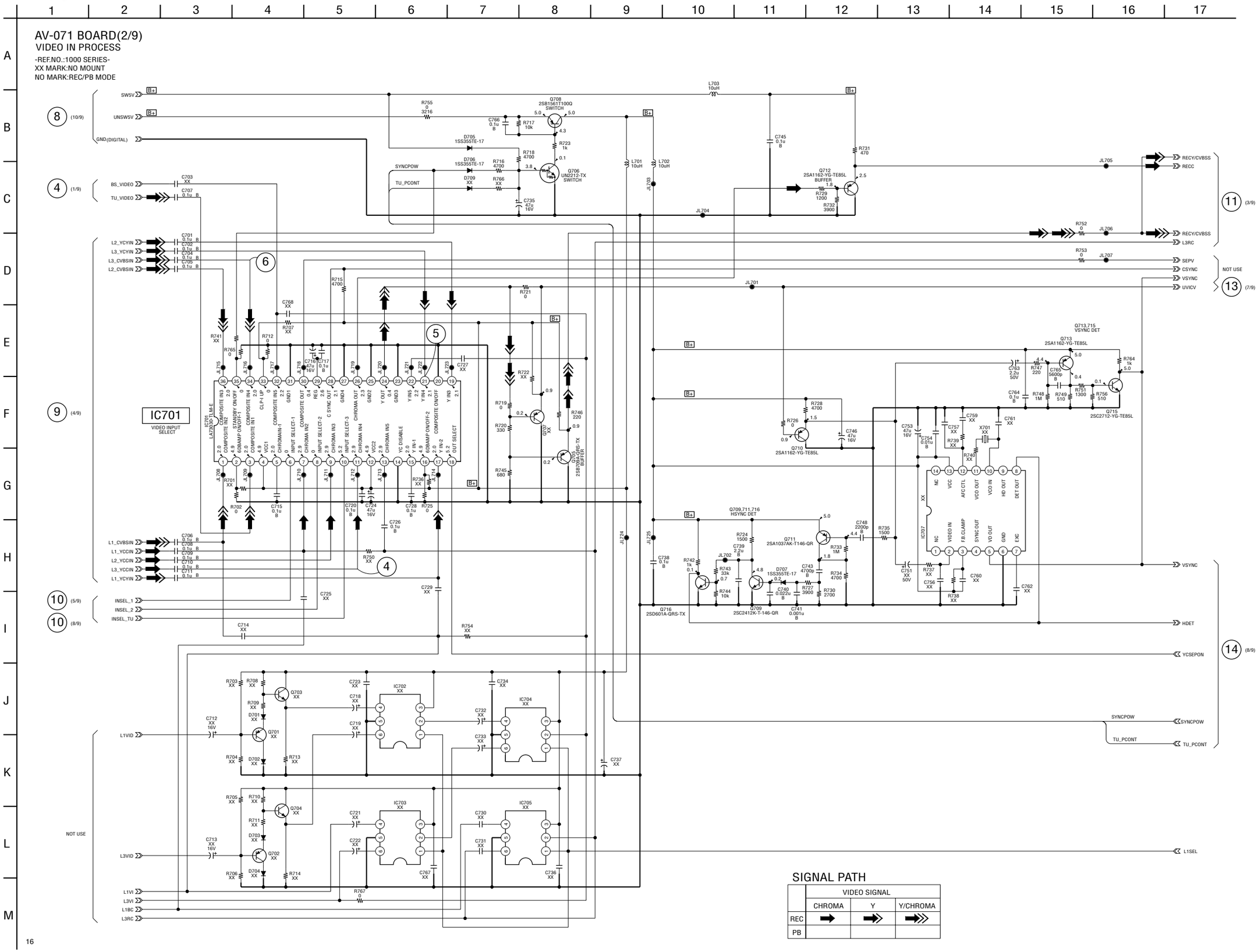
XX MARK:NO MOUNT

NO MARK:REC/PB MODE



For Schematic Diagram

- Refer to page 4-23 for printed wiring board.
- Refer to page 4-4 for waveforms.



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡
PB			

For Schematic Diagram

• Refer to page 4-23 for printed wiring board.

AV-071 BOARD(3/9)

RD I/F

-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT

15 (9/9) SEPC, SEPY

NOT USE: L3B, XVMUTE, L3G, FSW

11 (5/9) RECC, RECY/CVBSS, RECY/CVBSS, L3RC

16 (6/9) AADDATA, AADBCK, AADLRCK, CEVASDO, CEVASCK

17 (5/9) PL2256L1, XAADRST, XAADCS, XAVRST, XFLMRST, XAWAKE5, XITRST5, CEVISDO5

18 (8/9) AWAKE_DONE, STATUS1, STATUS0, ITREQ5, CEVISDI5, CEVISCK5, ONDO, TU_PCONT

3 (1/9) EPGVIDEO

19 (4/9) XVMUTE, CR/R, CB/B, Y/G, Y, C, V

20 (6/9) OPSFS96, GTUDBCK, XAMUTE, GTUDDATA, GTUDLRCK, XADACS, XAVRST, SPDIFO, PL1512L1

21 (9/9) SW3.3V, GND (DIGITAL), GND (ANALOG)

CN1203 5P

DIAG	1	
RS_XEN	2	
SH_RXD2	3	
SH_TXD2	4	
DGND	5	

CN1201 47P

1	AGND
2	R41
3	AGND
4	FC43
5	AGND
6	RECC
7	AGND
8	B31
9	AGND
10	RECY
11	AGND
12	FY33
13	AGND
14	G21
15	AGND
16	CVBSS
17	AGND
18	FSW
19	XITFLMRST
20	AI_SDT
21	IT_XAWAKE
22	AI_BCK
23	IT_XRST
24	AI_LRCK
25	DGND
26	256FS
27	DGND
28	DGND
29	512FS
30	DGND
31	IT_SIN
32	AAD_XRST
33	SHAWAKE5
34	AAD_XSCS
35	SHSTATUS1
36	SHSTATUS0
37	IT_REQ
38	IT_SOUT
39	IT_SCLK
40	DGND
41	DGND
42	SPDIFO
43	DGND
44	SPDIFI
45	EPG_PCONT
46	EPGGND
47	EPGVIDEO

CN1202 40P

1	TEMP
2	CR/R
3	AGND
4	CB/B
5	AGND
6	Y/G
7	AGND
8	Y
9	AGND
10	XVMUTE
11	AGND
12	C
13	AGND
14	V
15	AGND
16	DGND
17	DIAG
18	DGND
19	RS_XEN
20	DGND
21	SH_RXD2
22	ADA_FS96
23	SH_TXD2
24	DGND
25	RESERVED
26	RESERVED
27	DGND
28	AO_BCK
29	XAMUTE
30	AO_SDT
31	DGND
32	AO_LRCK
33	RESERVED
34	AV_XRST
35	TTXT_ENABLE
36	ADA_XSCS
37	ADA_SIN
38	ADA_SCK
39	TTXT_SCL
40	TTXT_SDA

TO RD-045 BOARD CN1901 (THROUGH THE FRA-002 FLAT CABLE)

(NOT SCHEMATIC DIAGRAM)

TO RD-045 BOARD CN1902 (THROUGH THE FRA-003 FLAT CABLE)

(NOT SCHEMATIC DIAGRAM)

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

• Refer to page 4-23 for printed wiring board.

AV-071 BOARD(4/9)

A/V IN/OUT TARMINAL

-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

IC802
VIDEO OUT PROCESS

IC801
-5V REG

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB	⇨	⇨	⇨	⇨

For Schematic Diagram
• Refer to page 4-23 for printed wiring board.

AV-071 BOARD(5/9)

AUDIO IN

NO MARK:REC/PB MODE

-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT

SIGNAL PATH

	AUDIO SIGNAL
REC	⇨
PB	

IC201

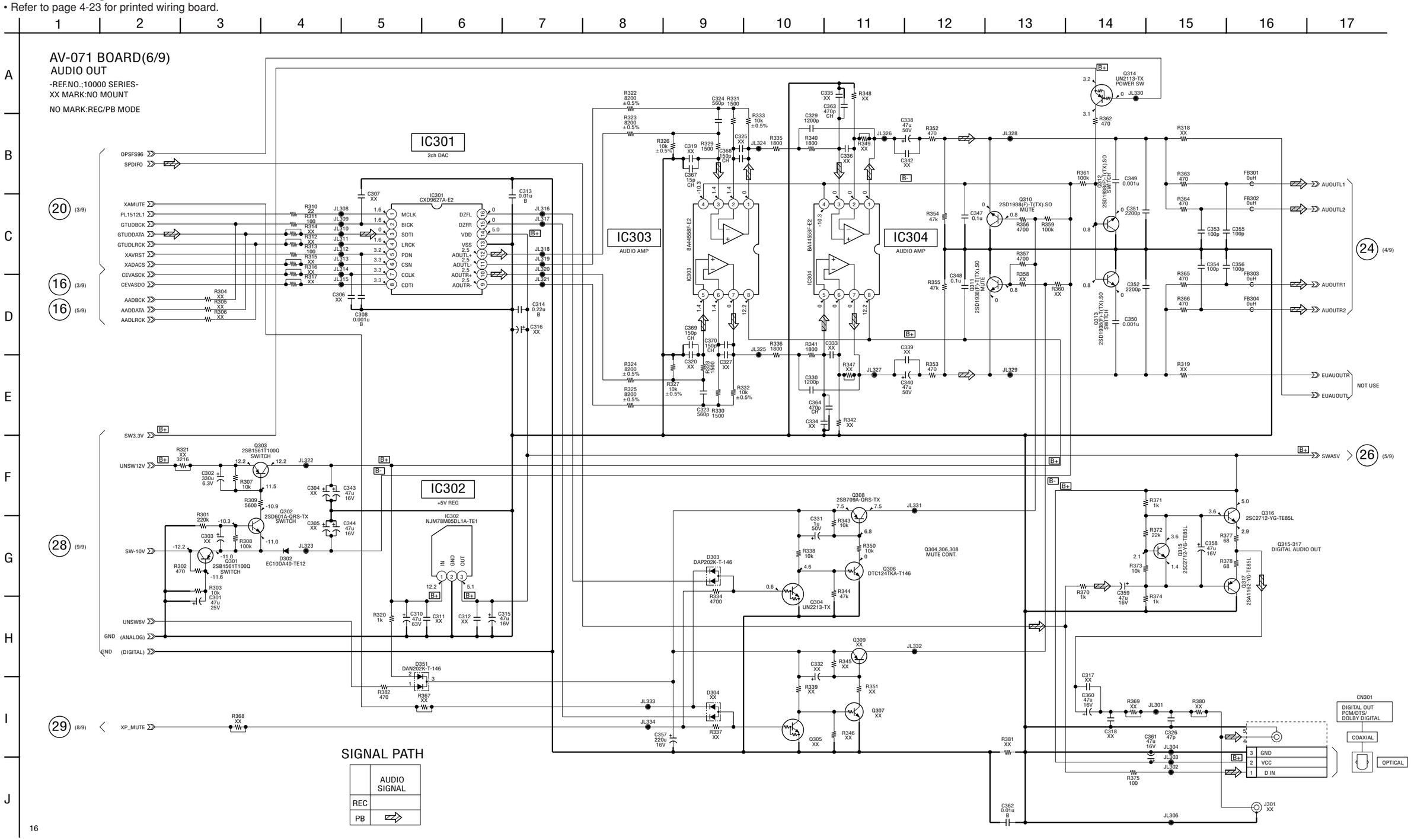
AUDIO IN PROCESS

IC201
AK5365VQ

NOT USE

For Schematic Diagram

• Refer to page 4-23 for printed wiring board.



AUDIO OUT
AV-071 (6/9)

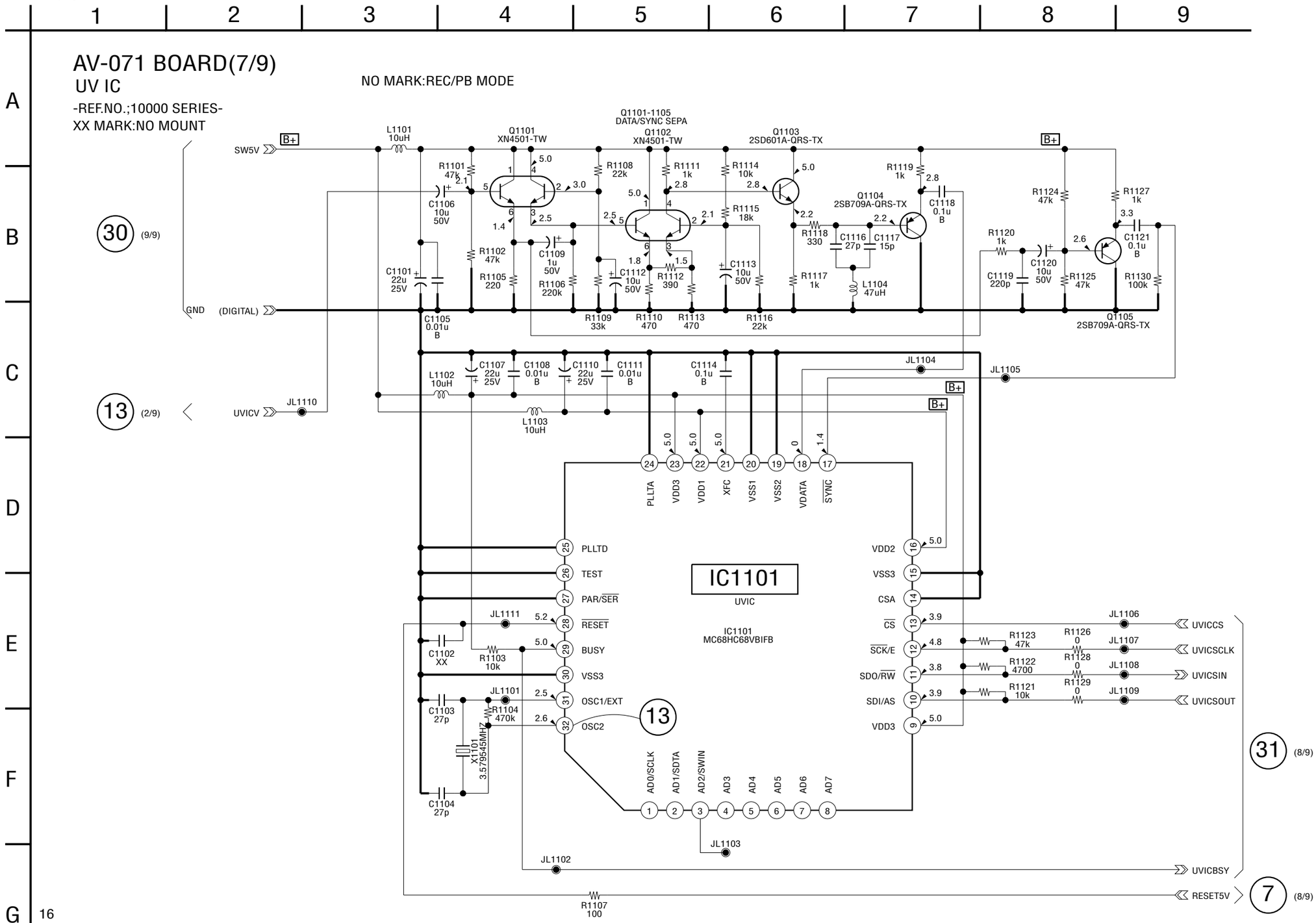
For Schematic Diagram
- Refer to page 4-23 for printed wiring board.
- Refer to page 4-4 for waveforms.

AV-071 BOARD(7/9)

UV IC

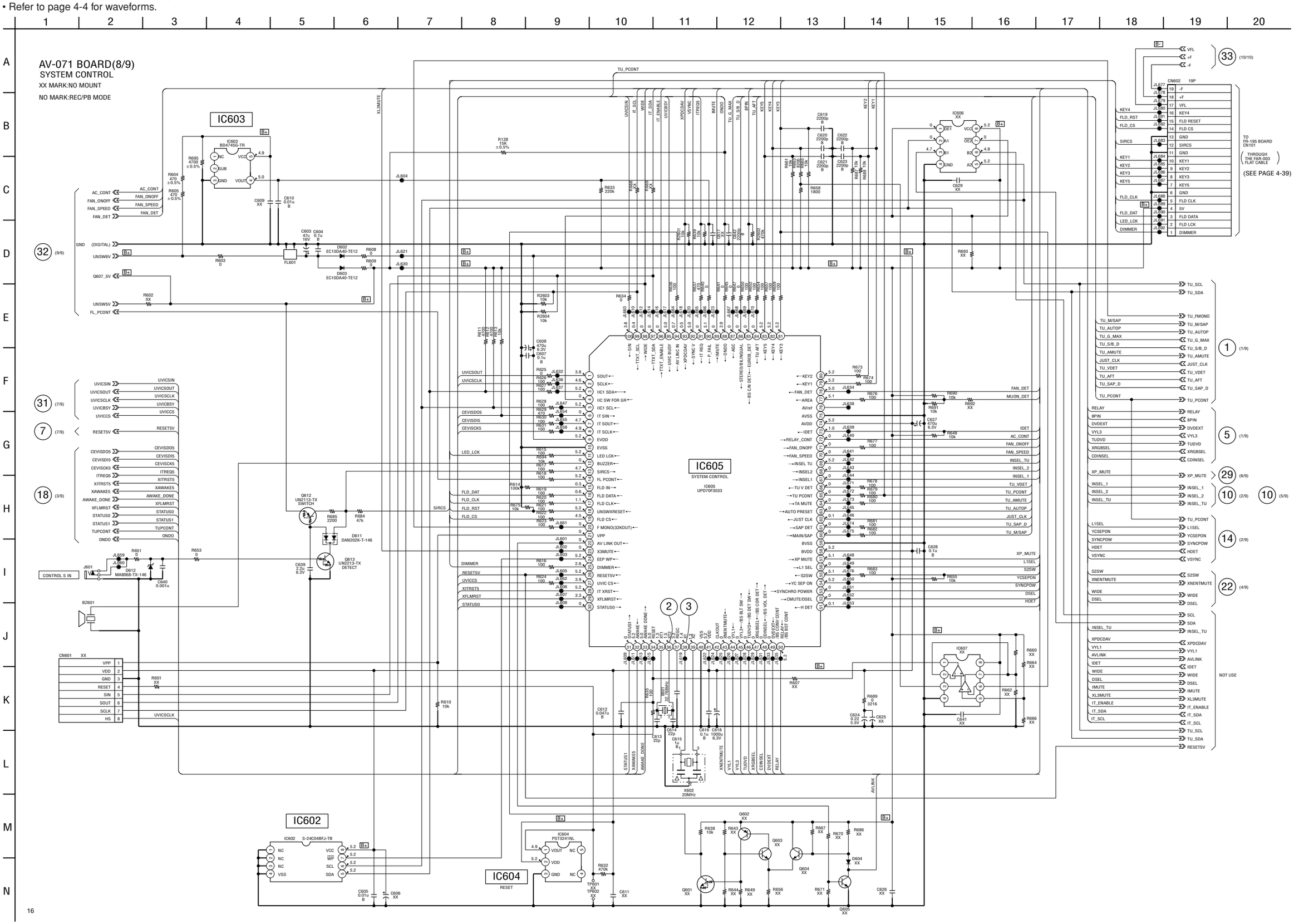
-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE



For Schematic Diagram

- Refer to page 4-23 for printed wiring board.
- Refer to page 4-4 for waveforms.



For Schematic Diagram

• Refer to page 4-23 for printed wiring board.

AV-071 BOARD(9/9)

POWER

-REF.NO.;10000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

CN101 13P
DGND 1
DGND 2
N.C 3
FAN12V 4
SW3.3V 5
UNSW-10V 6
AGND 7
AGND 8
UNSW18V 9
UNSW13V 10
UNSW6V 11
UNSW6V 12
AC_CONT 13

TO POWER BLOCK CN3

(SEE PAGE 4-42)

JL118 JL103 JL102 JL106 JL119 JL108 JL107 JL105 JL104

R129 0 R130 0 R137 0 R135 0

PS102 0.7A PS101 1A

ET101 XX ET102 XX ET103 XX ET104 XX

D101 XX D102 XX D103 XX

AC_CONT BS_D_DET FAN_ONOFF FAN_SPEED FAD_DET

CN102 3P
FAN12V 1
SENS 2
GND 3
FAN

CN103 XX
FAN12V 1
SENS 2
GND 3

JL109 JL110 JL111 JL112 JL101

C104 10u 50V C102 0.1u B C101 0.1u B

R123 33k ±0.5% R124 12k ±0.5% R125 3900 ±0.5%

Q103 UN2213-TX FAN CONT SW

R134 XX R118 0 R126 10k R136 XX R133 XX

IC101 PQ20WZ5U FAN DRIVE

IC102 PQ050DZ01ZPH +5V REG

IC103 XX

IC106 PQ1L503M2SPQ +5V REG

IC104 XX

IC105 PQ20WZ5U +12V REG

R108 0 R114 0 C106 XX C108 47u 16V C110 47u 16V R116 0 JL113

C120 XX C121 XX C123 XX

R131 0 C103 1.3 0.1u B

R115 0 R109 XX C107 XX C109 47u 16V C111 47u 16V R117 0 JL114

JL120 JL121 JL122 JL123

R110 XX R119 XX C112 XX C114 XX C116 XX L101 XX R107 XX R122 XX JL116 R101 XX R102 XX R103 XX

R120 0 R111 0 C113 XX C115 47u 25V C117 47u 16V JL117 R127 0 R104 4700 R105 3300 R106 2200

C118 XX R112 3300 R132 3300 R113 10k Q107 UN2111-TX Q108 2SD1766-T100-QR JL115 R121 0

Q606,607 FL POWER SW Q606 UN2211-TX Q607 UN2111-TX R696 XX C630 XX R672 3300 R699 2700 R642 10k R646 3300 R606 0 L601 47uH Q608 2SD1781K-T146-QR SWITCH R697 2200 Q609 2SC5053T100Q OSC C632 0.018u B C633 0.018u B C643 0.012u B C644 0.01u B Q610 2SC5053T100Q OSC C631 220u 16V

T601 SB-03532

D607 1SS355TE-17 D608 1SS355TE-17 D605 1SS355TE-17 D606 1SS355TE-17 JL656 JL657 C634 0.1u B C635 22u 50V

Q611 2SA1037AK-T146-QR VFL REG R698 1k C636 0.1u B D609 UDZS-TE17-22B C637 XX D610 MA8062-L-TX C638 0.1u B R700 27k

VFL -F +F (8/9) 33

SW3.3V UNSW-10V UNSW18V SW12V UNSW6V SW_10V SW5V UNSW12V UNSW5V

UNSW18V UNSW12V UNSW6V SW12V SW5V BS_DET GND(ANALOG) 6 (1/9)

UNSW5V SW5V GND(DIGITAL) 8 (2/9)

SW3.3V GND(DIGITAL) GND(ANALOG) 21 (3/9)

UNSW6V UNSW-10V SW12V SW5V SW3.3V GND(DIGITAL) GND(ANALOG) 23 (4/9)

SW3.3V GND(DIGITAL) GND(ANALOG) 27 (5/9)

UNSW12V UNSW6V SW3.3V SW-10V GND(DIGITAL) GND(ANALOG) 28 (6/9)

SW5V GND(DIGITAL) 30 (7/9)

UNSW6V UNSW5V Q607_5V AC_CONT FAN_ONOFF FAN_SPEED FAN_DET FL_PCONT GND(DIGITAL) 32 (8/9)

SW5V SW3.3V GND(DIGITAL) NOT USE

FL_PCONT Q607_5V

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For Schematic Diagram
• Refer to page 4-27 for printed wiring board.

FL-130
FL DRIVE
XX MARK:NO MOUNT

ND1701
15ST-41GNK
FLUORESCENT TUBE DISPLAY

IC1701
FL DRIVE

IC1701
ML9206-07MBZ03B

CN1703
DV IN

CN1704 6P
TO RD-45 BOARD CN2001
(THROUGH THE RF-113 HARNESS)
(NOT SCHEMATIC DIAGRAM)

CN1705 11P
TO AV-071 BOARD (4/9) CN801
(THROUGH THE AL-066 HARNESS)
(SEE PAGE 4-17)

CN1702 11P
TO FR-195 BOARD CN102
(THROUGH THE FFF-108 FLAT CABLE)
(SEE PAGE 4-40)

J1701
LINE 2 IN
S VIDEO
VIDEO
AUDIO L
AUDIO R

Q1703
UN2211-TX
LED DRIVE

Q1704
2SB709A-QRS-TX
LED DRIVE

D1704
MA152WK-TX

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB			⇨	⇨

For Schematic Diagram
• Refer to page 4-31 for printed wiring board.

FR-195 BOARD
SWITCH,LED
-REF.NO.:20000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

IC101
REMOTE CONTROL RECEIVER
IC101 GP1UM28SXK0F

IC103
LED DRIVE
IC103 BU2152FS

VSS	1	32	VDD
CLK	2	31	CLB
VSS	3	30	STB
DATA	4	29	SO
PLAY	5	28	P24
PAUSE	6	27	P23
REC	7	26	P22
REC_PAUSE	8	25	P21
DVD	9	24	P20
-RW	10	23	P19
+RW	11	22	MS
-R	12	21	PROGRESSIVE
CD	13	20	FINALIZED
VR	14	19	DT_REC
VIDEO	15	18	TIMER
Reserve	16	17	SYNCRO_REC

Q101 2SB710A-RTX SWITCH
Q102 UN2211-TX SWITCH

D102 SML-512WWT86 (PLAY)
D103 SML-512WWT86 (PAUSE)
D114 CL-196HR-CD-T (REC)
D115 SML-512WWT86 (REC_PAUSE)
D116 SML-512WWT86 DVD
D117 SML-512WWT86 -RW
D118 SML-512WWT86 +RW
D104 SML-512WWT86 -R
D105 SML-512WWT86 CD
D106 SML-512WWT86 VR
D107 SML-512WWT86 VIDEO
D108 XX
D119 CL-196HR-CD-T SYNCHRO_REC
D109 CL-196HR-CD-T TIMER_REC
D110 CL-196HR-CD-T
D111 SML-512WWT86 FINALIZED
D112 SML-512WWT86 PROGRESSIVE
D113 XX

CN102 11P

1	-F
2	+F
3	VFL
4	5V
5	KEY4
6	FLD RESET
7	FLD CS
8	GND
9	FLD SCLK
10	GND
11	FLD SOUT

TO FL-130 BOARD CN1702 (THROUGH THE FFF-018 FLAT CABLE)

(SEE PAGE 4-33)

CN101 19P

-F	1
+F	2
VFL	3
KEY4	4
FLD RESET	5
FLD CS	6
GND	7
SIRCS	8
GND	9
KEY1	10
KEY2	11
KEY3	12
KEY5	13
GND	14
FLD CLK	15
5V	16
FLD DATA	17
LED STB	18
DIMMER	19

TO AV-071 BOARD (8/9) CN602 (THROUGH THE FAR-003 FLAT CABLE)

(SEE PAGE 4-26)

OPEN /CLOSE, ZOOM+, SYSTEM MENU, ZOOM-, TOOLS, CURSOR MODE, REC MODE
S101 S102 S103 S104 S105 S106 S107

↑, ←, ENTER, ↓, →, RETURN, ONE TOUCH DUB
S108 S109 S110

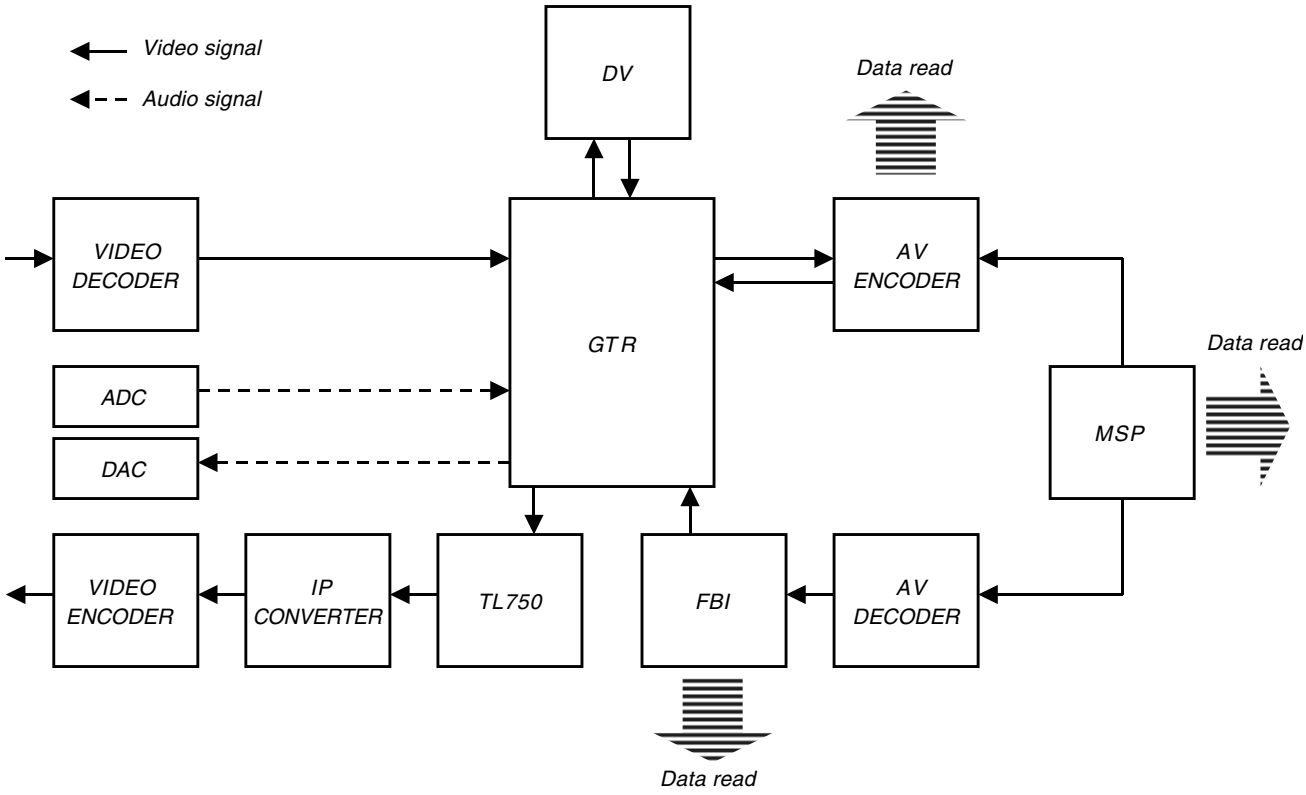
(NEXT), INPUT SELECT, (PREV), CH+, PROGRESSIVE, CH-
S111 S112 S113 S114 S115 S116

(STOP), REC STOP, (PAUSE), REC PAUSE, (PLAY), REC
S117 S118 S119 S120 S121 S122

SECTION 6
SERVICE MODE

This is the diagnostics to locate the faulty position.
The diagnostics can be executed using the remote commander (Remote Control Mode1) and a monitor.
To execute the diagnostics mode, connect the VIDEO OUT (L2 OUT) connector to a monitor. While pressing INPUT SELECT, REC MODE and STOP of the main unit, connect the AC power cord to the power outlet to start the diagnostics.
Keep pressing INPUT SELECT, REC MODE and STOP of the main unit (about 10 seconds) until the diagnostics screen appears on monitor display.
Either "OK" or "NG" appears on the monitor screen while the diagnostics is in progress. You can judge the respective device or its peripheral from the message of either "OK" or "NG" on the monitor screen.
When an abnormality is detected, the diagnostics is stopped at that moment and you can select to proceed the diagnostics or to stop it.
Use the remote commander (DVD1) keys or the keys on the front panel of the main unit to operate the diagnostics.

6-1. Device relation diagram. Display data (for your reference to check the signal path)

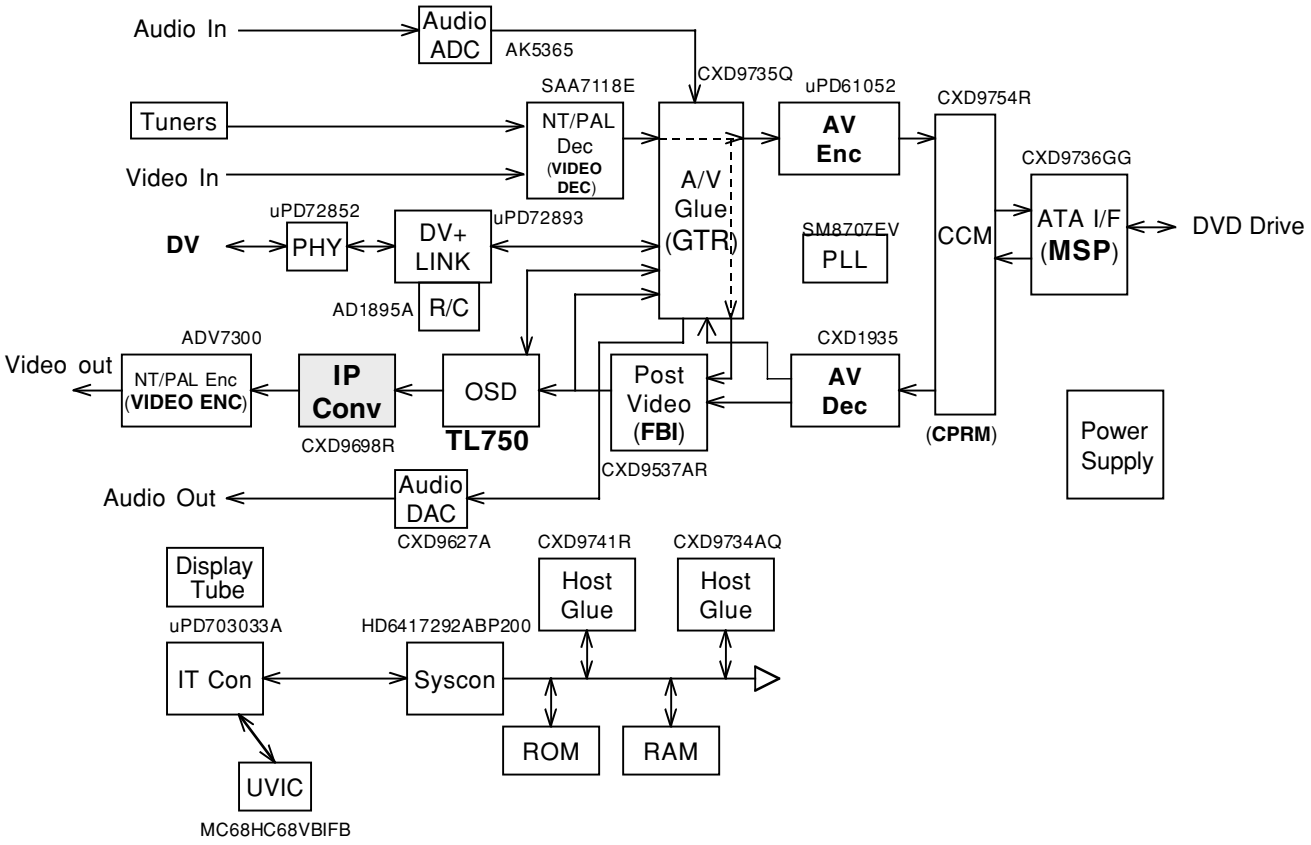


Checking item	IC name	REF
VIDEO ENC	IC ADV7300AKST	IC2303
IP CONV	IC CXD9698R	IC2301
TL750	IC TL750B5	IC1402
GTR	IC CXD9735Q	IC701
FBI	IC CXD9537AR	IC1301
VIDEO DEC	IC SAA7118E/V1.518	IC2202
AVENC	IC UPD61052GD-LML	IC903
MSP	IC CXD9736GG	IC1101
AVDEC	IC CXD1935Q	IC1203
DV	IC UPD72852GB-8EU	IC2001
	IC UPD72893GD-LML	IC2102
CPRM	IC CXD9754R	IC1001
CCM		
EPGSLICER	IC TC90A73U	IC1802
GEMSTAR	IC UPD65881GB-072-8ES	IC1807

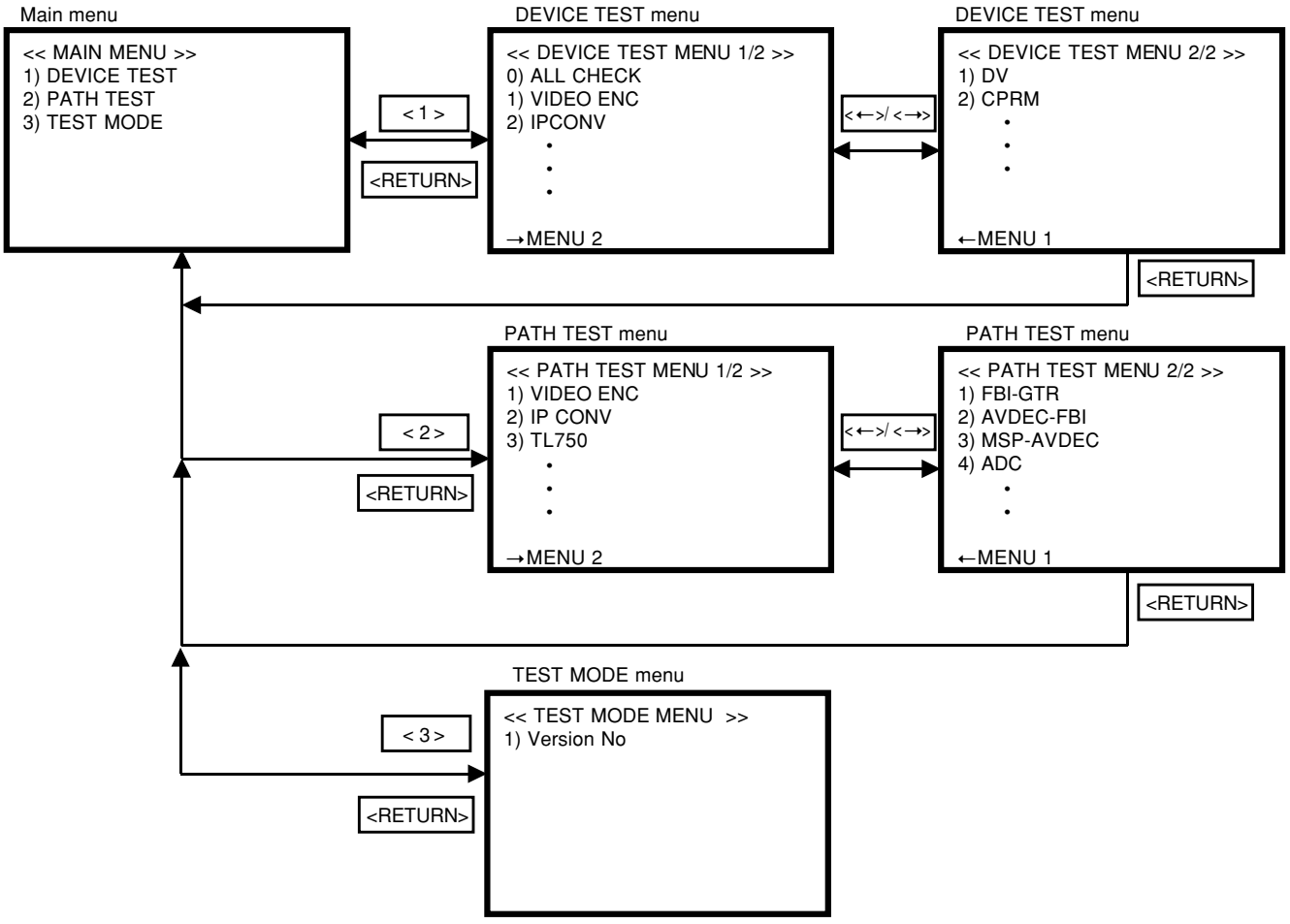
All parts are mounted on the RD045M'T assembly.

If NG is displayed as the result of DEVICE test, IC is defective or peripheral of the IC is defective.
If NG is displayed as the result of "PATH" test, defect exists in between ICs.

6-2. Block diagram (for your reference to check the devices)

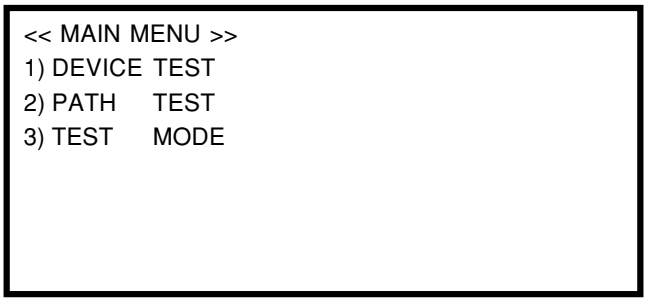


6-3. Screen Transition in the Service Mode



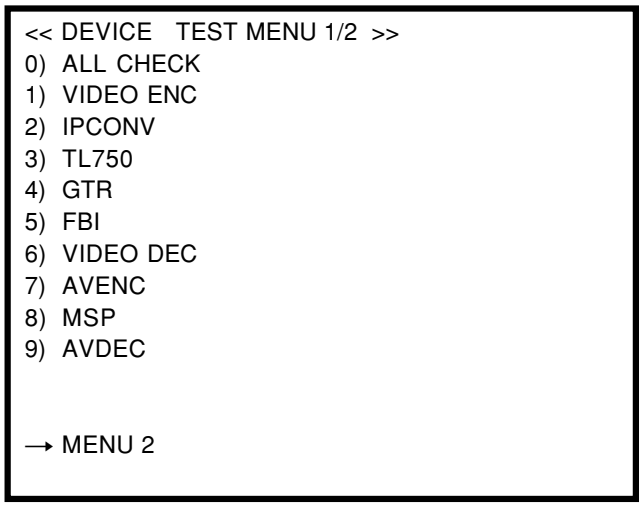
6-4. Service Mode. Menu Items and Description

1) When the key '1' is pressed down, the monitor display moves to the device check menu screen.
2) When the key '2' is pressed down, the monitor display moves to the path check menu screen between devices.
3) When the key '3' is pressed down, the monitor display moves to the version check screen.



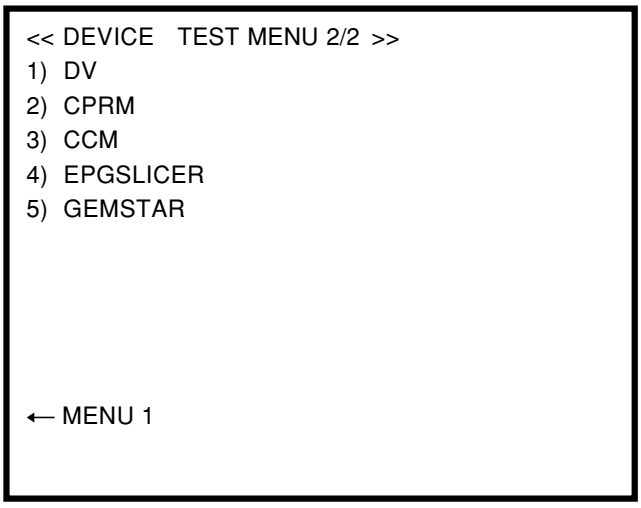
6-5. Device Check Menu (1/2)

0) When the key '0' is pressed down, all devices are checked automatically.
1) When the key '1' is pressed down, the VIDEOENC device check will be executed.
2) When the key '2' is pressed down, the IPCONV device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
3) When the key '3' is pressed down, the TL750 device check will be executed.
4) When the key '4' is pressed down, the GTR device check will be executed.
5) When the key '5' is pressed down, the FBI device check will be executed.
6) When the key '6' is pressed down, the VIDEODEC device check will be executed.
7) When the key '7' is pressed down, the AVENC device check will be executed.
8) When the key '8' is pressed down, the MSP device check will be executed.
9) When the key '9' is pressed down, the AVDEC device check will be executed.
10) When the key '→' is pressed down, the monitor display moves to the next path check menu screen.



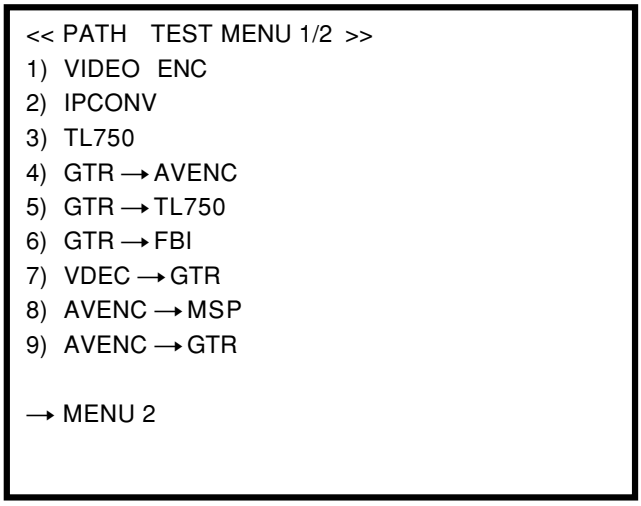
6-6. Device Check Menu (2/2)

1) When the key '1' is pressed down, the DV device check will be executed.
2) When the key '2' is pressed down, the CPRM device check will be executed.
3) When the key '3' is pressed down, the CCM device check will be executed.
4) When the key '4' is pressed down, the EPGSLICER device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
5) When the key '5' is pressed down, the GEMSTAR device check will be executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
6) When the key '←' is pressed down, the monitor display returns to the previous device check menu screen.



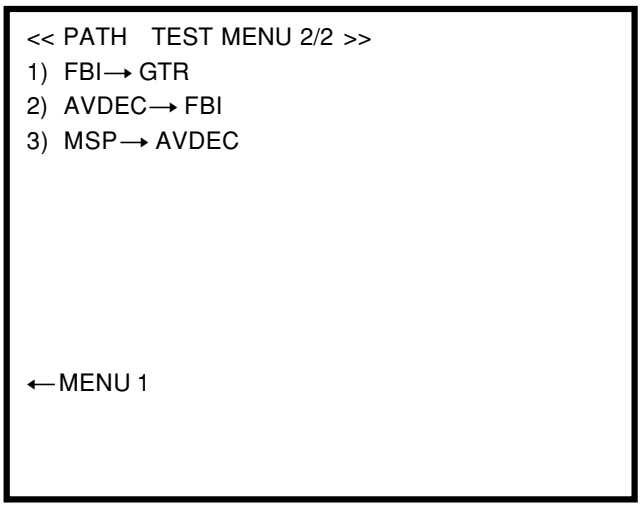
6-7. Path Check Menu (1/2)

1) When the key '1' is pressed down, VIDEOENC path check is executed.
2) When the key '2' is pressed down, IPCONV path check is executed. (This item is not installed in the EURO models, NG is displayed but it is not indicating any default of the main unit.)
3) When the key '3' is pressed down, TL750 path check is executed.
4) When the key '4' is pressed down, path check from GTR → AVENC is executed.
5) When the key '5' is pressed down, path check from GTR → TL750 is executed.
6) When the key '6' is pressed down, path check from GTR → FBI is executed.
7) When the key '7' is pressed down, path check from VDEC → GTR is executed.
8) When the key '8' is pressed down, path check from AVENC → MSP is executed.
9) When the key '9' is pressed down, path check from AVENC → GTR is executed.
10) When the key '→' is pressed down, the monitor display moves to the previous device check menu screen.



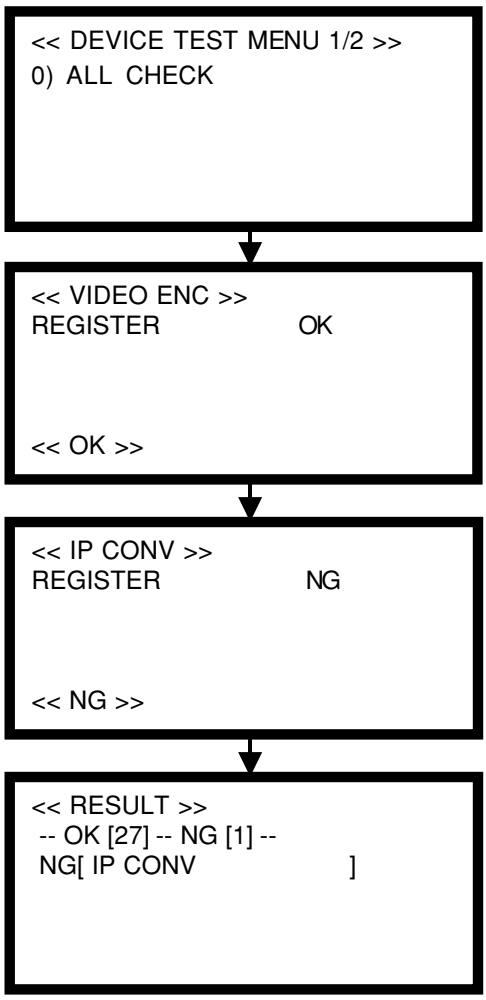
6-8. Path Check Menu (2/2)

1) When the key '1' is pressed down, path check from FBI→GTR is executed.
2) When the key '2' is pressed down, path check from AVDEC → FBI is executed.
3) When the key '3' is pressed down, path check from MSP → AVDEC is executed.
4) When the key '←' is pressed down, the monitor display returns to the previous path check menu screen.



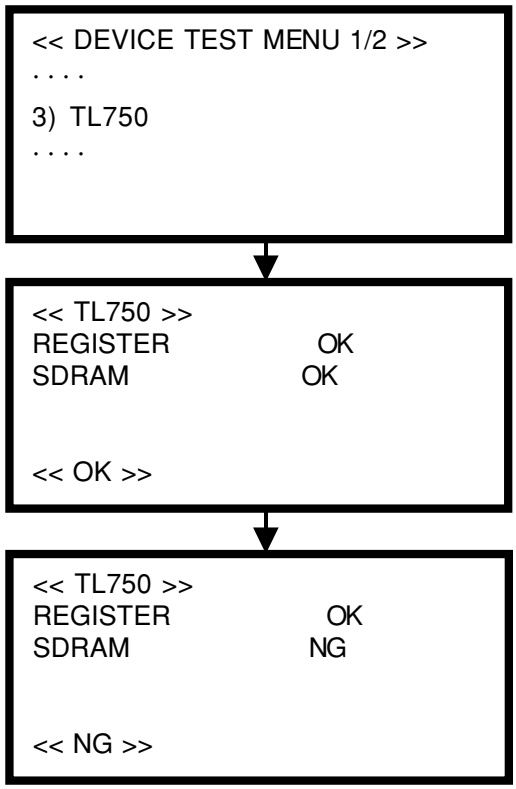
6-9. Device All Check. Screen Transition

1. Select the item “ALL CHECK” from the menu.
2. Device check is executed automatically starting from No. 1 one device after another.
3. When all devices are checked, number of OK/NG items and names of the NG devices are displayed as the RESULT.
4. When the ENTER key of the remote commander is pressed, the monitor display returns to the menu screen.



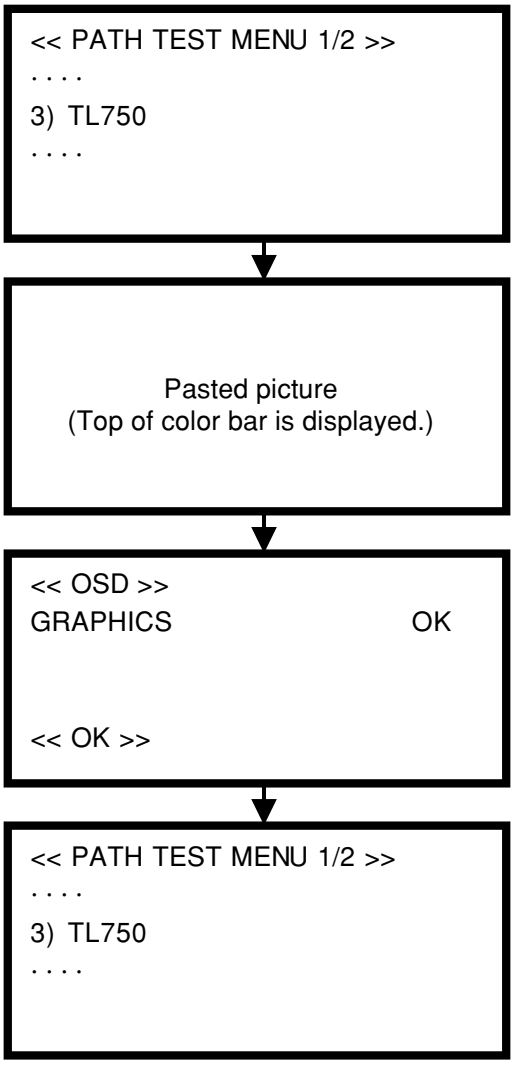
6-10. Device Individual Check. Screen Transition

1. Select the TL750 item from the menu.
2. The register read/write that is the first item of the check is executed and its result is displayed.
3. The SDRAM check that is the second item of the check is executed and its result is displayed.
4. When check results of all items are OK, the message OK is displayed. If any one of the check items is found NG, the message NG is displayed.
5. When the ENTER key is pressed, the monitor display moves the to the menu screen.



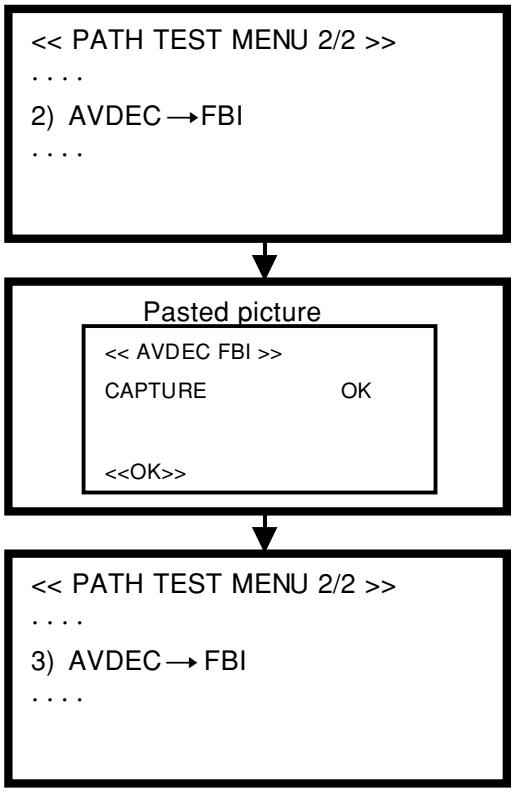
6-11. Path Individual Check (Pasted Screen Check). Screen Transition

1. Select the TL750 item from the menu.
2. The device pasted screen (top of the color bar) is displayed. (When visual check is required, the display does not move the judgment screen but remains displaying the picture.
3. When the ENTER key is pressed, the monitor display moves the to the judgment screen.
4. When the ENTER key is pressed on the judgment screen again, the monitor display moves the to the menu screen.



6-12. Path Individual Check (Data Check Confirmation). Screen Transition

1. Select the check item "AVDEC → FBI" from the menu.
2. The path check is executed and result of judgment is displayed.
3. When the ENTER key is pressed on the judgment screen again, the monitor display moves the to the menu screen.



SECTION 7
ADJUSTMENT

7-1. VIDEO SYSTEM ADJUSTMENT

Reference Disk
HLX-505 (NTSC Single layer disk) J-6090-089-A
HLX-504 (NTSC Dual layer disk) J-6090-088-A

1. Video Level Adjustment (RD-045 Board)

< Purpose >
This adjustment is made to satisfy the NTSC standard. If it is adjusted incorrectly, brightness will be too bright or too dark.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	LINE OUT (VIDEO) connector (terminated in 75Ω)
Instrument	Oscilloscope
Adjusting element	RV2301
Specification	$1.00 \, ^{+0.04}_{-0.02}$ Vp-p

Adjusting method:
1) Insert the reference disk and play back the 100% colour bars.
2) Adjust RV2301 for 1.0 Vp-p.

Fig. 7-1

2. Component Video Output Level Adjustment (RD-045 board)

< Purpose >
This is the adjustment for component video output. If this adjustment is made incorrectly, brightness of the component signal that is connected to the projector having COMPONENT input will have incorrect brightness.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (Y) connector (terminated in 75Ω)
Instrument	Oscilloscope
Adjusting element	RV2302
Specification	$1.00 \, ^{+0.04}_{-0.02}$ Vp-p

Adjusting method:
1) Insert the reference disk and play back the 100% colour bars.
2) Check that the Y level is $1.00 \, ^{+0.04}_{-0.02}$ Vp-p.

Fig. 7-2

3. S-Video Output S-Y Level Check

< Purpose >
This check confirms that the video output level at the S-video output connector is correct. If this adjustment is made incorrectly, picture will not be displayed correctly when the S-video connector output signal is connected to TV using cable.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	S-VIDEO OUT (S-Y) connector (terminated in 75Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05Vp-p

Adjusting method:
1) Insert the reference disk and play back the 100% colour bars.
2) Check that the S-Y level is 1.0 ± 0.05 Vp-p.

Fig. 7-3

4. S-Video Output S-C Check

< Purpose >
This check confirms that the S-video output S-C conforms to the NTSC standard. If it is adjusted incorrectly, colour will be too dark or too thin.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	S-VIDEO OUT (S-C) connector (terminated in 75Ω)
Instrument	Oscilloscope
Specification	286 ± 30mVp-p

Checking method:
1) Insert the reference disk and play back the 100% colour bars.
2) Confirm that the burst signal level of S-C is 300 ± 30mVp-p.

Fig. 7-4

5. Component Video Output Y Check

< Purpose >

This check confirms that the Y signal output is correct. If this signal level is not correct, brightness of video signal will be too bright or too dark when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (Y) connector, D1/D2 VIDEO OUT connector, pin-① (terminated in 75Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05 Vp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.
2) Check that the Y level is 1.0 ± 0.05 Vp-p.

Fig. 7-5

6. Component Video Output B-Y Check

< Purpose >

This check confirms that the B-Y signal of the component video output is correct. If this signal level is not correct, colour of the video signal will have different colour when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (PB/CB) connector, D1/D2 VIDEO OUT connector, pin-③ (terminated in 75Ω)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.
2) Confirm that the B-Y level is 700 ± 50 mVp-p.

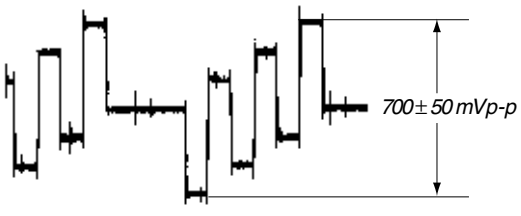


Fig. 7-6

7. Component Video Output R-Y Check

< Purpose >

This check confirms that the R-Y signal of the component video output is correct. If this signal level is not correct, colour of the video signal will have different colour when the COMPONENT connector output signal is connected the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Colour bars
Test point	COMPONENT VIDEO OUT (PR/CR) connector, D1/D2 VIDEO OUT connector, pin-⑤ (terminated in 75Ω)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) Insert the reference disk and play back the 100% colour bars.
2) Confirm that the R-Y level is 700 ± 50 mVp-p.

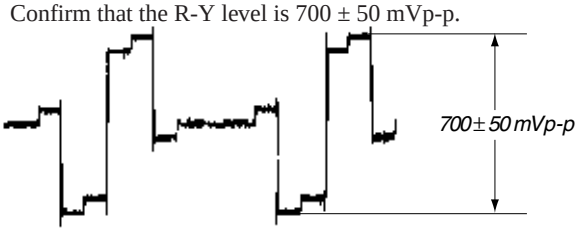


Fig. 7-7